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### MISCELLANEOUS.

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155. Proposed by A. H. HOLMES, Brunswick, Maine.

There are two vessels, one containing  $a$  gallons of alcohol, the other  $b$  gallons of water. Suppose that  $c$  gallons are simultaneously taken from each and poured into the other, how many times must this be done so that there will be the same proportion of alcohol to water in each vessel?

156. Proposed by R. D. CARMICHAEL, Hartselle, Ala.

There exist no multiply perfect odd numbers of multiplicity  $n$  containing only  $n$  distinct primes.

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### UNSOLVED PROBLEMS.

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NOTE. The following problems still remain unsolved (in our columns).

Average and Probability, 164 Proposed by J. O. MAHONEY, B.E., M.Sc., Central High School, Dallas, Tex.

If  $m$  is prime, and the numbers 0, 1, 2, .....,  $m^2 - 1$  are placed at random in the form of a square, the probability that the square is hyper-magic is  $(m-1)m/(m^2-2)!$

Algebra, 179. Proposed by DR. L. E. DICKSON, The University of Chicago.

Find the roots of the algebraically solvable quintic equation

$$x^5 + qx^2 + px + \frac{1}{8} \left[ \frac{q^2}{p} - \frac{p^3}{5q} \right] = 0.$$


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### NOTES AND NEWS.

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Mr. B. M. Rastall is assistant in mathematics at the University of Wisconsin.

Mr. E. A. Moritz, Mr. R. S. Peatter, and Mr. E. R. Smith have been appointed instructors in mathematics at the University of Wisconsin.

The University of North Carolina has granted a years leave of absence to Mr. M. H. Stacy, who will pursue a graduate course in mathematics at Cornell University.

The American Association for the Advancement of Science held its annual meeting during the holidays at New Orleans, La. Section A: Mathematics and Astronomy, was presided over by Dr. W. S. Eichelberger, of the United States Naval Observatory at Washington, D. C. Professor L. G. Weld, of the University of Iowa, is secretary of the Section.